

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/011585

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-22 as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-12 received by this Authority on 17.06.2005 with telefax
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- sheets \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, nos. 13, 14
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	7, 11, 12	YES
	Claims	1-6, 8-10	NO
Inventive step (IS)	Claims		YES
	Claims	1-12	NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
This report makes reference to the following documents:			
D1: DATABASE CHEMABS [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; Z.B.BAKASOVA ET AL.: "Synthesis of selective herbicides and fungicides from compounds of .alpha.-amino acids and their derivatives", XP002319014, found in STN-INTERNATIONAL Database, accession no. 139:373556 CA			
D2: A.K.JAIN ET AL.: "Some new metal chelates of L-lysine monohydrochloride as potential antifungals", Indian J. Phy.Nat.Sci., Vol. 3, Sec. A, July 1983; pages 51-52			
D3: DATABASE CHEMABS [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; Z.KANG ET AL.: "The fungicidal action of mixed cupric amino-acid complexes", XP002319016, found in STN-INTERNATIONAL Database, accession no. 124:330755 CA			
D4: DATABASE WPI Section Ch, Week 197343, Derwent Publications Ltd., London, GB; Class C03, AN 1973-65325U, XP002319020 & JP 48 034205 B (TANABE SEIYAKU CO), 19 October 1973 (1973-10-19)			

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D5:	WO 02/083599 A (PENN AR BED SARL; MADEC, ALAIN), 24 October 2002 (2002-10-24)
D6:	WO 00/30450 A (BASF AG; SCHELBERGER, KLAUS; SCHERER, MARIA; SAUR, REI), 2 June 2000 (2000-06- 02)
D7:	DATABASE CHEMABS [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; XP002319017, found in STN-INTERNATIONAL Database, accession no. 115:66800 CA
D8:	DATABASE CHEMABS [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; P.ARMAN ET AL.: "Copper fungicides. XII. Absorption of complexes by leaves", XP002319018, found in STN- INTERNATIONAL, Database, accession no. 60:40317 CA
D9:	WO 03/030926 A (PROCYTE CORPORATION; PATT, LEONARD, M), 17 April 2003 (2003-04-17)
D10:	US 2003/035848 A1 (BATARSEH KAREEM I ET AL), 20 February 2002 (2003-02-20)
D11:	WO 02/30947 A (ALBION INTERNATIONAL, INC), 18 April 2002 (2002-04-18)
D12:	US-A-4 900 561 (ABDEL-MONEM ET AL), 13 February 1990 (1990-02-13)
D13:	DATABASE WPI Section Ch, Week 197650, Derwent Publications Ltd., London, GB; Class B04, AN 1976- 93846X, XP002319021 & SU 487 541 A (INFLUENZA RES INST), 16 April 1976 (1976-04-16)
D14:	US-A-5 504 055 (HSU ET AL), 2 April 1996 (1996-04- 02)
<b>(a) Certain observations on the international application</b>	

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	<p>It is not clear from the wording of claim 1 what use of lysine is claimed. This is due to the fact that the expression "as fungicide" can refer both to "a copper salt" and to "use of lysine". For the purposes of this preliminary report, and taking into account the description, claim 1 was construed to relate to the following subject matter: use of lysine in fungicidal formulations which contain at least one copper salt as fungicide, in order to increase the fungicidal effect of copper (see the description of the present application: page 1, line 39 - page 2, line 2; examples of use).</p> <p><b>(a) Novelty:</b></p> <p>The subject matter of claims 1-6 and 8-10 is not novel (PCT Article 33(2)):</p> <p>Document D2 describes the fungicidal effect of a copper-L-lysine chelate against <i>Curvularia pallescens</i> and the phytopathogenic fungus <i>Alternaria alternata</i> (see D2: table 1). In view of D2, the subject matter of claim 10 (first alternative, which does not include a suitable adjuvant) is not novel (PCT Article 33(2)).</p> <p>Document D5 describes fungicidal compositions which comprise 1-5% copper hydroxide, copper oxide or copper salts, and amino acid mixtures which contain 3.7-4.4% lysine, as well as their use against cryptogamic plant diseases. Alkalis are added to hasten the preparation of the compositions. The copper-amino acid compositions are formulated with adjuvants. The preparation of a copper fungicide with a reduced copper quantity yet unchanged</p>

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	<p>effectiveness is mentioned as the problem addressed by the invention described in that document. This corresponds to an increase in the fungicidal effectiveness of copper. The examples show that the admixture of amino acid mixtures achieve fungicidal effects which correspond approximately to those of commercially available copper fungicides, although the copper content is reduced by a factor ranging from 5 to 15 in relation to those fungicides. Moreover, the examples mention mixtures of the copper salt-amino acid compositions with dithiocarbamate fungicides (see D5: page 1, lines 1-3 and 24-26; page 2, line 2 - page 3, line 8; examples 1, 2, on page 5, line 31 - page 6, line 15; page 8, line 1 - page 9, line 8; claims 1, 2). Since D5 thus describes fungicidal copper compositions in which the fungicidal effect of copper is enhanced by the admixture of amino acid mixtures which contain lysine, <i>inter alia</i>, the subject matter of claims 1-6 and 8-10 is not novel (PCT Article 33(2)).</p> <p>Document D11 describes compositions produced from copper salts and lysine. Example 15 describes a formulation which additionally contains corn starch and rice flour. These additives fall under the definition of "adjuvants" in the present application (see D11: page 7, lines 14-27; page 13, lines 15-23; example 15) (see the present application: page 5, lines 24 ff.; page 7, lines 4-6). The subject matter of claim 6 is not novel over D11 (PCT Article 33(2)). It is pointed out that, according to Chapter IV, 7.6, of the PCT International Preliminary Examination Guidelines of 9 October 1998, and to Chapter 12.05 of the PCT International Search and Preliminary</p>

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	<p>Examination Guidelines of 25 March 2004, non-distinctive characteristics of a particular intended use should be disregarded when assessing the novelty of claims directed to an object.</p> <p>Document D12 describes the preparation of copper-lysine complexes and mentions that these complexes are formulated with carrier materials (see D12: column 3, line 28 - column 4, line 26; column 5, lines 41-49; examples). The subject matter of claim 6 is not novel over D12 (PCT Article 33(2)). It is pointed out that, according to Chapter IV, 7.6, of the PCT International Preliminary Examination Guidelines of 9 October 1998, and to Chapter 12.05 of the PCT International Search and Preliminary Examination Guidelines of 25 March 2004, non-distinctive characteristics of a particular intended use should be disregarded when assessing the novelty of claims directed to an object.</p> <p><b>(b) Inventive step</b></p> <p>Since the subject matter of claims 1-6 and 8-10 is not novel, it cannot involve an inventive step (PCT Article 33(3)).</p> <p>Dependent claims 7, 11 and 12 do not contain any features which, in combination with the features of any claim to which they refer, meet the PCT novelty or inventive step requirements:</p> <p>The admixture of pH-value increasing substances to hasten the reaction of copper salts with basic amino acids is</p>

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	<p>known from documents D4 and D5. Document D5 expressly mentions the use of ammonia. Moreover, document D14 emphasises the advantage of a plant-strengthening effect obtained by the use of ammonia (see D14: column 3, lines 6-14).</p> <p>The use of a copper-based fungicide to combat or prevent cryptogamic diseases of seeds (as described in claim 11) lies within the scope of what a person skilled in the art routinely makes on the basis of familiar considerations. The treatment of wood with copper-based fungicides (as described in claim 12) is only a standard method which is also mentioned in document D6, <i>inter alia</i> (see D6: page 5, lines 10-11).</p> <p>Consequently, the subject matter of claims 7, 11 and 12 also fails to involve an inventive step (PCT Article 33(3)).</p> <p>As relates to the synergistic mixtures of copper salt, lysine, ammonia formulations with pyraclostrobin, which are described only in the examples but not in the claims of the present application, reference is made to document D6, which teaches that the effect of mixtures of copper salts with pyraclostrobin is synergistically increased. A combination of this teaching of D6 with the teachings of the other documents mentioned in this report, which describe the fungicidal effect of formulations of copper salts with basic amino acids, in particular lysine, would be obvious to a person skilled in the art and thus does not involve an inventive step (PCT Article 33(3)).</p>



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The subject matter of claims 6 and 10 also fails to involve an inventive step in relation to documents D1 and D2. Document D1 describes the preparation of copper(II)-lysine complexes as potential fungicides (see "controlled terms 'IT"). The subject matter of claim 10 (first alternative: method for combating phytopathogenic fungi with formulations which contain lysine and copper salts) does not involve an inventive step in relation to that teaching (PCT Article 33(3)). Document D2 describes the fungicidal effect of a copper-L-lysine chelate against *Curvularia pallescens* and the phytopathogenic fungus *Alternaria alternata* (see D2: table 1). Since a person skilled in the art routinely adds adjuvants when using fungicides, the subject matter of claim 6 does not involve an inventive step (PCT Article 33(3)) in relation to D1 and to D2.

**(c) Industrial applicability**

The subject matter of claims 1-12 appears to be industrially applicable (PCT Article 33(4)).